

REMARKS

Status of Claims

Claims 1 - 16 are present for examination and in the Examiner's paper mailed 09/05/08.

- 5 At page 2 of the Examiner's paper the Examiner rejects "Claims 1-9, 11 and 13-16 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of the 35 U.S.C 112, second paragraph rejections mentioned by the Examiner have been addressed and are believed to be accommodated
- 10 by small changes to the claim involved in each case.

- At page 2, paragraph 2, of the Examiner's paper at the first sentence, the Examiner says "It is noted in claim 1, step a, line 1, the term "alternating" has been deleted. However, claims 8 and 9, which further define the step, include the term
- 15 "alternating" and the term should properly be put back into claim 1, step a to avoid confusion."

Claim 1 step a is amended as to re-insert the word "alternating as follows:

- 20 "a. providing a power supply having an alternating output voltage adjustable over a range extending from 4,000 to 12,000 volts, the power supply providing its output to a first and second terminal,".

At paragraph 3, first sentence, the Examiner lists five instances where he has detected a lack of antecedent basis type errors. The list of six instances includes:

- claim 13, step f, "the Taylor cone";
- 25 claim 13, step h, lines 3-4, "the desired pattern";
- claim 14, step e, "the needle tip";
- claim 14, step f, line 2, "the electrospinning cone";

claim 14, step h, line 3, "the desired pattern";

claim 16, line 3, "the Taylor cone".

Claim 13, step f is amended as follows:

- 5 f. adjusting the output voltage of the power supply to increase the electric field between the needle tip and target until ~~[[the]]~~ a Taylor Cone is formed,

The article "a" is inserted to show that the following term is a first occurrence.

10 At Claim 13, step "h" the article "the" is deleted and the article "a" is inserted in its place in front of the phrase "desired pattern" on line three to eliminate the problem of a lack of antecedent. The phrase "to characterize" is replaced on line five with the word ---forming--- to make the claim more definite. Claim 13, step h is amended as follows:

- 15 "h. moving the target with respect to the needle in a linear direction for a fixed distance and then reversing such motion with respect to the target while at the same time indexing the target utilizing a precision positioner, and when ~~[[the]]~~ a desired pattern has been achieved in one axis, the target is rotated ninety degrees and the process repeated, to provide desired patterns ~~[[to characterize]]~~ forming the
- 20 contact lens to be formed and controlling the potential during the electrospinning process to maintain a mean fibril distance, ~~of approximately 200 nm, and~~ "

25 The limitation of the phrase --- of approximately 200 nm --- is found in the published application. This limitation is believed to be unnecessarily restrictive in Claim 13. A decision was made to delete this limitation from claim 13 for the following reason.

At paragraph [0026] of the published subject application, the following excerpt appears near the end of the published paragraph:

5 “By simply alternating the applied needle voltage from a positive to
a negative polarity, the electrospun fibers can be deposited at precise
intervals to enable the construction of a precise electrospun "mat" of
polymer material. This electrospun "mat" of polymer fibers could be
constructed in such a way as to maintain mean fibril distance of
approximately 200 nm (10.sup.-9 meters). When evaporation of the
10 solvent occurs from the electrospray jet, the result is fine micrometer
(10.sup.-6 meters) to nanometer (10.sup.-9 meters) diameter polymer
strands. The accumulation of such strands creates a "mat" of media
having a diameter ranging from tens of microns or more down to tens of
nanometers or less, depending on the concentration and nature of solute,
15 the conductivity and viscosity of liquid, and the potential difference
between the needle and target.”

Since the disclosure mentions diameters of a range of “from tens of microns or more
down to tens of nanometers or less, “ the application is implying that the mean fibril
20 distance will vary accordingly as required to achieve transparency. Therefore, the
limitation of “approximately 200 nm” is deleted in this claim, and if acceptable, the
same limitation will be deleted in independent claim 14 subject to prior approval of this
change to claim 13 by the Examiner. The proposed change to Claim 14 can be made by
supplemental amendment or by Examiner’s amendment to assist in expediting issuance.

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Claim 13, as amended deletes step i. as follows:

30 i. ~~alternating the polarity of the output voltage of the power supply
between the target and the needle tip to prevent charge buildup on electrospun fibers
and to permit the deposition of electrospun fibers at precise intervals to enable the
construction of a precise electrospun mat of polymer fibers.~~

The words in Claim 13, step “i” characterize a desired result, but are not actions in a method step. The same step is deleted from Claim 14. The step is not further limiting because step “a” “provides a power supply having an alternating output voltage” so the
5 phrase in step i in claim 13 adds nothing that is not all ready there in terms of a limitation since it is understood by those in the art that an alternating power supply provides alternating polarity of the output voltage.

10 Claim 14, step e has no antecedent basis for the phrase “needle tip”. To accommodate this problem, step b is amended as follows.

“b. providing a conductive target having a surface on which to form
a base surface (a cornea contact surface) of the contact lens, and a needle
having a needle tip,”

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Claim 14 step f line 2 has no antecedent basis for the phrase “the electrospinning cone”. Step f in claim 14 is amended to replace the article “the” with the article --- an ---.

At claim 14, step h, line 3 the phrase “the desired pattern” has no antecedent basis. The
20 word “spay” is replaced by the word --- spray ---. The deletion of the phrases “not of”, the word “to” and the addition of the phrase --- that does not --- is made to make the claim easier to understand but does not change the meaning.

Claim 14, step f is amended as follows:

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“f. adjusting the output voltage of the power supply to increase the
electric field between said needle and target until [[the]] an
electrospinning cone is formed launching a [[spay]] spray of solute and
solvent solution to the target, the voltage being adjusted to [[not of]] a
30 magnitude [[to]] that does not result in a corona discharge or coronal
effect,”

At claim 14, step h, at line 3 the phrase “desired pattern” has no antecedent basis. The article “the” is deleted and the article “an” is added to eliminate the problem of a lack of antecedent basis for the phrase ---desired pattern---.

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Claim 14, step h is amended as follows:

“h. moving the needle in a linear direction for a fixed distance and then reversing such motion with respect to the target while at the same time indexing the target utilizing a precision positioner and when [[the]]
10 a desired pattern has been achieved in one axis, the target is rotated ninety degrees and the process repeated, to provide desired patterns over a region of the target exceeding the perimeter of the contact lens to be formed and controlling the potential during the electrospinning process to maintain a mean fibril distance of approximately 200 nm,”

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Claim 14. is amended to delete step i: as follows:

[[i.]] ~~alternating the polarity of the output voltage of the power supply between the target and the needle to prevent preventing charge buildup on electrospun fibers and to permit the deposit of electrospun fibers at intervals to enable the~~
20 ~~construction of a electrospun mat of polymer fibers~~

The words in Claim 14, step “i” characterize a desired result, but are not actions in a method step. The same step is deleted from Claim 13. The step is not further limiting because step “a” “provides a power supply having an alternating output voltage” so the
25 phrase in step “i” in claim 14 adds nothing that is not all ready there in terms of a limitation since it is understood by those in the art that an alternating power supply provides alternating polarity of the output voltage.

Claim 14 is further amended to change the step letter “j.” to be “i.” as a result of the deletion of step “i.” in its entirety. Additional limitations are deleted which are inherent in the adjustments necessary to control the desired transparency.

5 “[j.] i. adjusting the electric field between the target and the
needle, the pressure applied to the dissolved polymer solute in the needle
10 tip and the material temperature to control flow rate of the material onto
the mat being formed on the target, ~~the ambient temperature and the~~
~~distance traveled across the lens region on the target and the gap~~
~~between the needle and the target to adjust the diameter and spacing of~~
15 ~~the fibers being deposited~~, the contact lens having an optical
transparency that is adjusted by controlling the diameter of the collagen
fibers and the spacing of the collagen fibers being deposited.”

The Examiner points out that the phrase “Taylor cone” appears in claim 16, line
15 3 without an antecedent basis. Claim 16 is therefore amended to delete the
phrase “Taylor cone” and replace it with the phrase electrospinning cone.
Claim 16 depends from independent claim 14 and the phrase electrospinning
cone appears in step f, line 2 of the earlier independent claim.

Claim 16 is amended as follows”

20 “16. (currently amended) The method of creating a contact lens from a
mat of polymer material of claim 14 further comprising:
 providing a source of free ions and directing the free ions to the
 [[Taylor Cone]] electrospinning cone in step [[f.]] f to further reduce
 charge induced whipping of the spray of solute and solvent solution
25 moving to the target.”

At paragraph three, second sentence, the Examiner comments that:

“Also, periods are missing at the end of claims 2-4 and these need to be

inserted.” Claims 2, 3 and 4 are amended to add periods at the end of each of the respective claims.

At paragraph three, third sentence, the Examiner comments that:

5 “In claims 6, 7 and 11, line 1, the period should be deleted after the step letter designated;

 the same for claims 15 and 16, line 4. “ Claims 6, 7, 11, 15 and 16 are all amended to eliminate the periods that appear after the step letter mentioned in each of the respective claims.

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At page 2, paragraph 3, of the Examiner’s paper fourth sentence, the Examiner comments that:

 “In claim 5, it is not clear why the terms "Micro Electro Mechanical Structure" are capitalized and these should preferably be in lower case.”

15 Claim 5 is amended as follows to correct the problem.

 5. (currently amended) A method as in claim 1 where the needle is a ~~Micro Electro Mechanical Structure~~ micro electro mechanical structure device.

20 At paragraph three, fifth sentence, the Examiner comments that:

 “Finally, in claims 8 and 9, line 2, the quotes surrounding the step letter should be deleted.”

 Claims 8 and 9 are amended to delete the quotes around the step letter in each respective claim as follows.

5 “8. (currently amended) The method of claim 1 further comprising the
step of modifying step [[“a”]] a for providing a power supply having an
alternating output voltage adjustable over a range extending from 4,000
to 12,000 volts to be a step of providing a high voltage dc power supply
providing its output to a first and second terminal and connecting the
output terminals to the power supply output through a switching means
for reversing the polarity of the output terminals at high frequency.

10 9. (currently amended) The method of claim 1 further comprising the
step of modifying step [[“a”]] a for providing a power supply for having
an alternating output voltage adjustable over a range extending from
4,000 to 12,000 volts to be a step of providing a high voltage ac power
supply to output terminals. “

15 The spelling of the word --- spay --- was corrected to be “spray”
throughout the claims.

Applicant has no knowledge of new matter being added.

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Conclusion:

It is submitted that the application is now in condition for allowance and an
early indication of same is earnestly solicited. If the examiner should have any
25 questions, he may feel free to contact the undersigned at the telephone number below.

The Commissioner is hereby authorized to charge any additional fees which
may be required regarding this application under 37 C.F.R. §~ 1.16-1.17, or credit any
overpayment, to Deposit Account No. 500656.

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This Fourth Amendment is being filed electronically within the 3 months
allowed.

Respectfully submitted

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